



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,159	09/22/2003	Norifumi Furuta	117152	6337
25944	7590	06/04/2008	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			PARRIES, DRU M	
ART UNIT	PAPER NUMBER			
		2836		
MAIL DATE	DELIVERY MODE			
06/04/2008	PAPER			

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/665,159	Applicant(s) FURUTA ET AL.
	Examiner DRU M. PARRIES	Art Unit 2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

- 1) Responsive to communication(s) filed on 07 March 2008.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9, 13-21 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-9, 13-21 and 25-28 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed March 7, 2008 have been fully considered but they are not persuasive. Regarding the Clark/Olarig combination, Clark teaches a connector where the state of electrical connection changes once the connection means of his connector (the male and female connectors) are fully pressed together. However, at that time, the mechanical connection isn't fully secure and could be pulled apart by hand, and if pulled apart fast enough a user could see some sort of spark, arcing, or worse due to the electrical connection already being made before the mechanical connection is secure.

On the other hand, Olarig teaches a connector where the state of electrical connection changes only AFTER the connection means are fully pressed together AND secured by an attaching means to secure the mechanical connection. As stated in the previous office action, the difference between Olarig and Clark is *when* the state of the electrical connection changes, and Olarig's method is an improvement on Clark's because it only allows a voltage to pass through a connector only after the connector is securely mechanically connected with no possibility for the mechanical connection to come loose or separate and produce sparks or arcing. Unlike Clark's invention where the mechanical connection is not secure and could be quickly yanked out of the other connector and produce a spark or worse.

The reasons stated above are the motivation to modify Clark's invention with Olarig's method. "The reason provided in Olarig" (top of page 8 of Arguments stated by

the Applicant) is irrelevant to the subject at hand. The bottom line is that the modification allows for the connection to be fully mechanically secured before any high voltage power is flowing through the connector, as opposed to a loose connection that could be yanked away at any time and may cause arcing. So, contrary to the Applicant's assertion that there is no way in Clark where a person operating Clark's connector can come in contact with any high voltages, the above scenario could cause that to happen, and that's why there is a need for Olarig's modification.

Olarig's methods teaches allowing the mechanical connection to become fully mated AND secured via attaching means before electricity can flow through said connector. He also teaches a CPU that is alerted of the attaching means securing a connector in place and only then does the CPU change the state of the electrical connection to ON/connected (i.e. allowing electricity to flow through said connector). And, when the attaching means is moved from its secured position, the CPU changes the state of the electrical connection to OFF/disconnected. So, modifying Olarig's teaching into Clark's invention would be to have a CPU control/delay the electrical connection of the connector until after the attaching means secures the connector in place.

Also, Olarig DOES teach "a CPU controlling the interlock control circuit to change a state of a high voltage supply to set connection means...in response to detachment of said attaching means and prior to any movement of the connection means."

The Examiner agrees with the Applicant that the combination would allow power to be energized/de-energized based on the movement of lever (44). However, the

Art Unit: 2836

Examiner disagrees with the Applicant's assertion that the combination would render Clark's connector inoperable. Well, maybe his connector, but not his invention. After all, the modification is to modify the interaction between the connection means, attaching means, and interlock control circuit, therefore, the new connector of the Olarig/Clark combination will be different than the connector as known in Clark. So, if the Applicant means that the combination would change Clark's connector to not work the way it is described in the Clark invention, then the Examiner agrees.

Furthermore, Clark discloses in Figs. 4-6 and Col. 4, line 33 thru Col. 5, line 15 that the state of electrical connection is dependent upon the attaching means as well. He teaches that the attaching means need to be rotated as the connectors are in the process of being fully mechanically connected to one another, and by the time they are fully connected, the attaching means are in their fully secured position to secure the mechanical connection of the connectors, and at that point, the state of the electrical connection has changed to ON/connected.

Regarding the newly added limitations to claims 1 and 13, Clark teaches two connectors (male and female) with the female connector having the attaching means attached to it. Clark also teaches the female connector being attached to the high-voltage equipment housing. Therefore, Clark teaches the attaching means being attached to a body of the housing.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 5, 9, 13, 17, 21, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (5,913,691) and Olarig et al. (6,587,909). Clark teaches a high-voltage equipment housing comprising connection means (male and female connectors; the female connector being attached to the housing) for making an electrical connection to external equipment. He also teaches an attaching means (cam lever and locking means) to prevent the mechanical connection of said connection means from being released by said connection means only, and the cam lever, once secured, prevents the connection means from being touched, wherein the attaching means is attached to the female connector (Col. 2, lines 26-29). He also teaches the

high voltage housing in a vehicle, therefore it would be inherent that there is holding means for mounting the equipment on a vehicle (Fig. 27). It is also inherent that the connection means are positioned to be touchable by a hand of a person, when not prevented by said attaching means, since the cam lever and locking means need to be moved into place to secure the connections. Clark fails to teach an interlock control circuit. Olarig teaches an interlock control circuit comprising a connection means (16), attaching means (18), and a changing means (CPU, 12). The changing means teaches changing the state of connection between a system (10) and external equipment (14) to a disconnected state when the attaching means is detached (Col. 3, lines 46-50; Col. 5, lines 28-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement Olarig's interlock control circuit and method into Clark's invention, so that the connection and disconnection of the external equipment in Clark's invention can be done as safely as possible to minimize the possibility of an electrocution or shock.

5. Claims 2, 6, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (5,913,691) and Olarig et al. (6,587,909) as applied to claims 1 and 13 above, and further in view of Heberlein et al. (6,361,356). Clark and Olarig teach a high voltage housing as described above. Clark fails to teach an interlock circuit attached to said attaching means. Heberlein teaches an electrical connector used in automobiles. He teaches the connector comprising an interlock circuit (56) attached to attaching means (arm lever, 16) and when the state of the electrical connection changes to disconnected state is when the interlock circuit opens

in response to detachment of said attaching means (Col. 4, lines 7-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to add an interlock circuit into Clark's invention so that it can visually notify operators that a connection has been securely made between two devices.

6. Claims 3, 7, 15, 19, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (5,913,691) and Olarig et al. (6,587,909) as applied to claims 1, 13, and 14 above, and further in view of Saitoh et al. (5,274,722). Clark and Olarig teach a high-voltage housing with connectors as described above. Clark also teaches an upper lid on the high voltage distribution box. These references fail to teach a prevention means for the upper lid of the housing. Saitoh teaches a housing structure with an upper lid (9) having prevention means (hooks, 11) connected to the housing for preventing the upper lid from being detached once the connector has been connected (Fig. 6). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement this preventing means for a housing into Clark's invention so that it makes the housing safer for users so that the inner equipment can't be touched unless the connectors are disconnected, which eliminates the possibility of electrocution.

7. Claims 4, 8, 16, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (5,913,691), Olarig et al. (6,587,909), and Heberlein et al. (6,361,356) as applied to claims 1, 2, 13, and 14 above, and further in view of Saitoh et al. (5,274,722). Clark, Olarig and Heberlein teach a high-voltage housing with connectors as described above. Clark also teaches an upper lid on the high voltage

distribution box. These references fail to teach a prevention means for the upper lid of the housing. Saitoh teaches a housing structure with an upper lid (9) having prevention means (hooks, 11) connected to the housing for preventing the upper lid from being detached once the connector has been connected (Fig. 6). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement this preventing means for a housing into Clark's invention so that it makes the housing safer for users so that the inner equipment can't be touched unless the connectors are disconnected, which eliminates the possibility of electrocution.

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Dru M Parries, whose telephone number is (571) 272-8542.

Art Unit: 2836

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry, can be reached on 571-272-2800, ext 36.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael J Sherry/
Supervisory Patent Examiner, Art Unit 2836